

THAT WHICH IS CLAIMED

1. A method of blowing drying gas against a paper web, in which method drying gas is blown with an impingement dryer comprising a plurality of profiling chambers in the cross-direction of a paper machine, the cross-profile of the paper web being controlled by means of the drying gas blown from the profiling chambers; each profiling chamber blowing drying gas to its own effective area; and the impingement dryer further comprising a return air chamber and return air ducts in such a way that drying gas blown against the paper web from the profiling chambers is returned into the return air chamber through the return air ducts, the method comprising returning drying gas blown against the paper web into the return air chamber through the return air ducts without the drying gas affecting the effective area of the adjacent profiling chamber.

2. A method according to claim 1, wherein drying gas is returned into the return air chamber through slot-like return air ducts arranged between the profiling chambers.

3. A method according to claim 1, wherein drying gas is returned into the return air chamber through hole-like return air ducts arranged between the profiling chambers.

4. A method according to claim 1, wherein the amount of drying gas blown from the profiling chamber is adjusted with a control unit arranged in connection with the profiling chamber.

5. A method according to claim 4, wherein the control unit comprises a damper and an actuator that moves it.

6. A method according to claim 5, wherein the actuator is a spindle motor.

7. A method according to claim 1, wherein the temperature of the drying gas is arranged between 200°C and 600°C.

8. A method according to claim 1, wherein the blowing rate of the drying gas is arranged between 50 and 150 m/s.

9. A method according to claim 1, wherein the drying gas is air.

10. A method according to claim 1; wherein the drying gas is superheated steam.

11. An impingement dryer of a paper machine, comprising a plurality of profiling chambers in the cross-direction of the paper machine, the profiling chambers being arranged to control the cross-profile of a paper web in such a way that each profiling chamber is arranged to blow drying gas against the paper web to its own effective area; and the impingement dryer further comprising a return air chamber and return air ducts in such a way that drying gas blown against the paper web is arranged to be returned into the return air chamber through the return air ducts, and that the return air ducts are arranged between the profiling chambers in such a way that drying gas blown against the paper web from the profiling chambers is arranged to be returned into the return air chamber through the return air ducts and that the return air ducts are configured to prevent the drying gas essentially affecting the effective area of the adjacent profiling chamber.

12. An impingement dryer according to claim 11, wherein the return air duct is a slot between the profiling chambers.

13. An impingement dryer according to claim 11, wherein the return air duct is a hole between the profiling chambers.

14. An impingement dryer according to claim 11, wherein the width of the profiling chamber is 30 to 70 mm.

15. An impingement dryer according to claim 11, wherein the width of the return air duct is 5 to 10 mm.

16. An impingement dryer according to claim 11, comprising further a control unit in connection with the profiling chamber in order to adjust the amount of drying gas to be supplied to the profiling chamber.

17. An impingement dryer according to claim 16, wherein the control unit comprises a damper and an actuator that moves it.

18. An impingement dryer according to claim 17, wherein the actuator is a spindle motor.

19. An impingement dryer according to claim 11, wherein the impingement dryer is arranged in connection with a vacuum roll in the dryer section of the paper machine.

20. An impingement dryer according to claim 19, wherein the impingement dryer is arranged below the vacuum roll.

21. An impingement dryer according to claim 20, wherein the impingement dryer is arranged below the vacuum roll in the basement of the paper machine.

22. An impingement dryer according to claim 11, wherein the impingement dryer is arranged in connection with a vacuum roll of a larger size than an ordinary vacuum roll of the paper machine.

23. An impingement dryer according to claim 11, wherein the impingement dryer is a plane-like impingement dryer.

24. An impingement dryer according to claim 11, wherein the temperature of the drying gas is arranged between 200°C and 600°C.

25. An impingement dryer according to claim 11, wherein the blowing rate of the drying gas is arranged between 50 to 150 m/s.

26. An impingement dryer according to claim 11, wherein the drying gas is air.

27. An impingement dryer according to claim 11, wherein the drying gas is superheated steam.